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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/816,221	04/02/2004	Takayuki Nakamoto	43888-310	7325

7590 07/18/2006

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EXAMINER	
CHUO, TONY SHENG HSIANG	

ART UNIT	PAPER NUMBER
1745	

DATE MAILED: 07/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No.	Applicant(s)	
	10/816,221	NAKAMOTO ET AL.	
	Examiner	Art Unit	
	Tony Chuo	1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 4/2/04.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>4/2/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

1. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No. 10/816,221, filed on 4/2/04.

Information Disclosure Statement

2. The information disclosure statement (IDS) submitted on 4/2/04 was filed on 4/2/04. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Drawings

3. The drawing filed on 4/2/04 are accepted by the examiner.

Double Patenting

4. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

5. Claim 9 is provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1 and 3-5 of copending application no. 10/982,056 in view of Tamura et al (US 2002/0172862). The copending application no. 10/982,056 discloses an energy device comprising a negative active material thin film that has a multi-layered configuration including at least two silicon thin films wherein a compound of silicon and oxide is present in the interface layer. The Tamura reference teaches a negative electrode active material that has oxide layer with a thickness of 10 nm (See paragraph [0011]). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the negative active material thin film of copending application no. 10/982,056 to include a silicon oxide layer that has an average thickness of 0.2 to 1,000 nm in order to suppress the separation of the thin film from the current collector to provide an improvement of the charge-discharge cycle characteristics.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

6. Claim 9 is provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1 and 3 of copending application No. 10/979,637 in view of Tamura et al (US 2002/0172862). The copending application no. 10/979,637 discloses an energy device comprising a negative active material thin film that contains silicon as a main component wherein part of the silicon contained in the negative active material thin film is an oxide. The Tamura reference teaches a

negative electrode active material that has oxide layer with a thickness of 10 nm (See paragraph [0011]). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the negative active material thin film of copending application no. 10/979,637 to include a silicon oxide layer that has an average thickness of 0.2 to 1,000 nm in order to suppress the separation of the thin film from the current collector to provide an improvement of the charge-discharge cycle characteristics.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claim 4 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 4 is indefinite as the recitation "a thickness in the range of $\pm 50\%$ of the average thickness" appears to suggest that the thickness of the surface layer is not determined. Additionally, the double inclusion of "a thickness" & "an average thickness" may create a confusion as to what specific thickness the applicant is ultimately intended to recite.

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claims 1-7 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Tamura et al (US 2002/0172862). Regarding claim 1-3, 5-7, and 9, the Tamura reference teaches a lithium secondary battery comprising: a negative electrode composed of a thin film of active material containing either tin alone or an alloy of tin and cobalt; and a tin oxide layer on the surface of the thin film that has a thickness of 10 nm (See paragraphs [0010],[0011],[0014],[0031]). Examiner's note: In this case, it is noted that, at least, the end point ^{→ (i.e. 10 nm) ~~any~~} constitutes a valid data point and thus it anticipates the claim as the end point represents a specific disclosure of a discrete embodiment of the invention disclosed by the prior art which amounts to a complete description and therefore an anticipation of the claimed range (See Ex Parte Lee 31 USPQ 2d 1105). Regarding claim 4, the reference teaches a thickness of the tin oxide layer that is 10 nm or more (See paragraph [0011]). Burden is on the applicants to show differences in product comparisons. Examiner's note: When Sn and Co are combined to form an alloy, typically there will be an Sn phase and an alloy phase containing Co.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tamura et al (US 2002/0172862) in view of Kusumoto et al (US 2003/0054252). The Tamura reference is applied to claim 1 for reasons stated above. However, the reference does not expressly teach a negative electrode active material that includes an amorphous Si phase. The Kusumoto reference does teach a negative electrode active material that includes an amorphous Si phase (See paragraph [0015],[0018]). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Tamura negative electrode active material to include an amorphous Si phase because an amorphous Si film can ease expansion and contraction when lithium ion is occluded and is discharged by inhibiting reduction of a negative electrode active material to fine powder and improving charge-discharge characteristics.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tony Chuo whose telephone number is (571) 272-0717. The examiner can normally be reached on M-F, 8:30AM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.


Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.

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Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TC



RAYMOND ALEJANDRO
PRIMARY EXAMINER